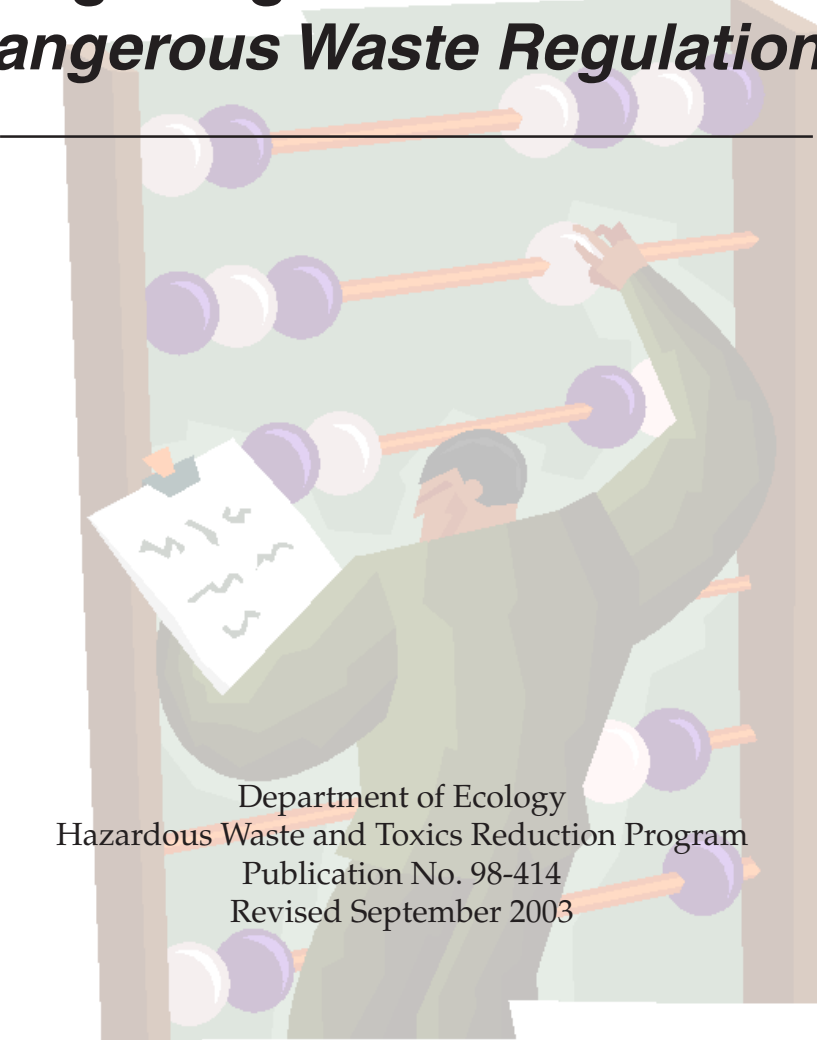
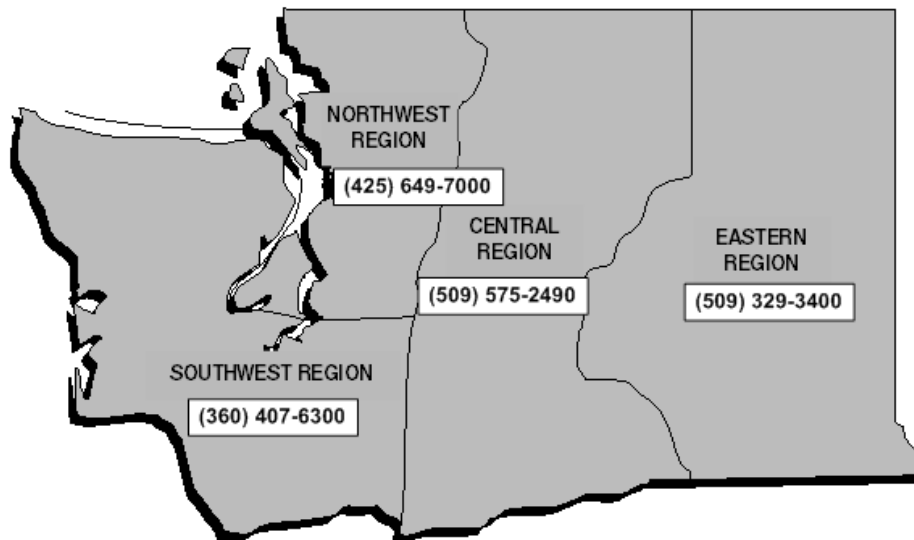




# Counting Dangerous Waste Under the *Dangerous Waste Regulations*

A stylized illustration of a person in a green shirt using an abacus to count. The person is holding a clipboard with a checklist in their left hand and moving a white bead on a string with their right hand. The abacus has several horizontal strings with white and purple beads. The background is a light green rectangle with a brown border.

Department of Ecology  
Hazardous Waste and Toxics Reduction Program  
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# Introduction

This document provides guidance on “counting” dangerous waste as it applies to the *Dangerous Waste Regulations*, Chapter 173-303 WAC. This document replaces TIM No. 89-1, dated 11/14/89, titled “Counting Spent Solvents and the Closed Loop Exclusion” and the previous version of this document dated June 2003. It is not intended to replace state or federal regulations or to explain how to designate waste. “Counting” refers to calculating the total weight of dangerous waste generated during a calendar month in determining generator compliance status.

## How to Use This Document

This document is not meant to function as a “stand alone document” and may not cover every possible situation readers may find themselves in. It will help the reader understand the *Dangerous Waste Regulations* and when to count dangerous wastes. Due to the complexity of regulations involved and terms used, it is suggested the reader have a recent copy of the *Dangerous Waste Regulations*. Flow diagrams and an attached counting matrix have been provided to help explain counting dangerous waste in relation to recycling and to treatment. Part of this document is a series of short “counting” discussions associated with the Domestic Sewage Exclusion (DSE), storage or accumulation, Treatment by Generator (TBG), Permit-By-Rule (PBR), the Multiple Counting Exclusion, and recycling in general.

## Reasons to Count:

Reasons for counting dangerous waste include:

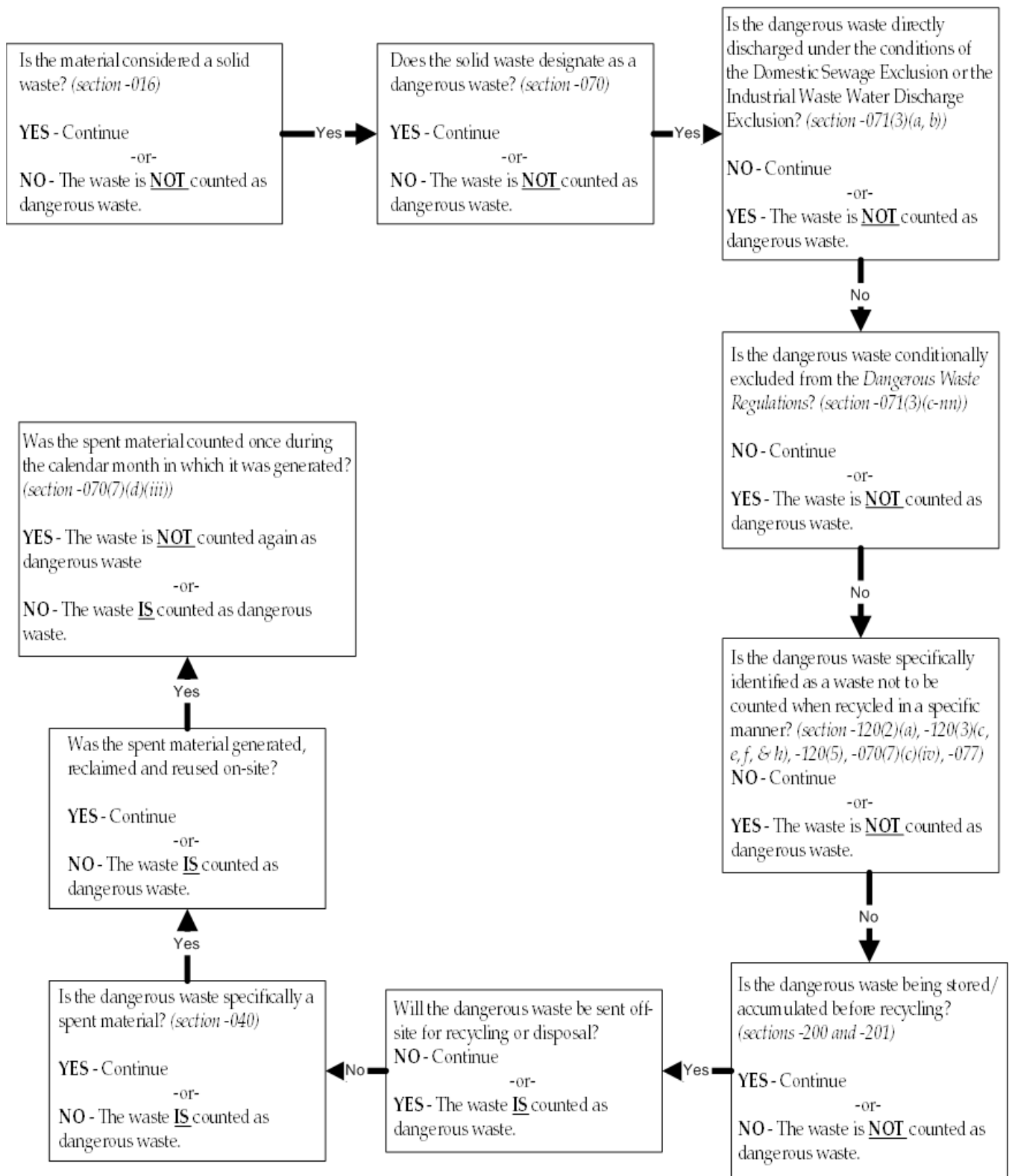
- To determine generator status (i.e., small, medium, or large quantity generator).
- To comply with generator requirements associated with submitting Dangerous Waste Annual Reports.
- To determine if a pollution prevention plan should be submitted. (Those requirements are clearly outlined in Chapter 173-307 WAC and will not be covered by this paper.)

### Counting Frequency:

Generators must count their waste each calendar month. Significant changes in the monthly totals can cause a change in the generator’s status.

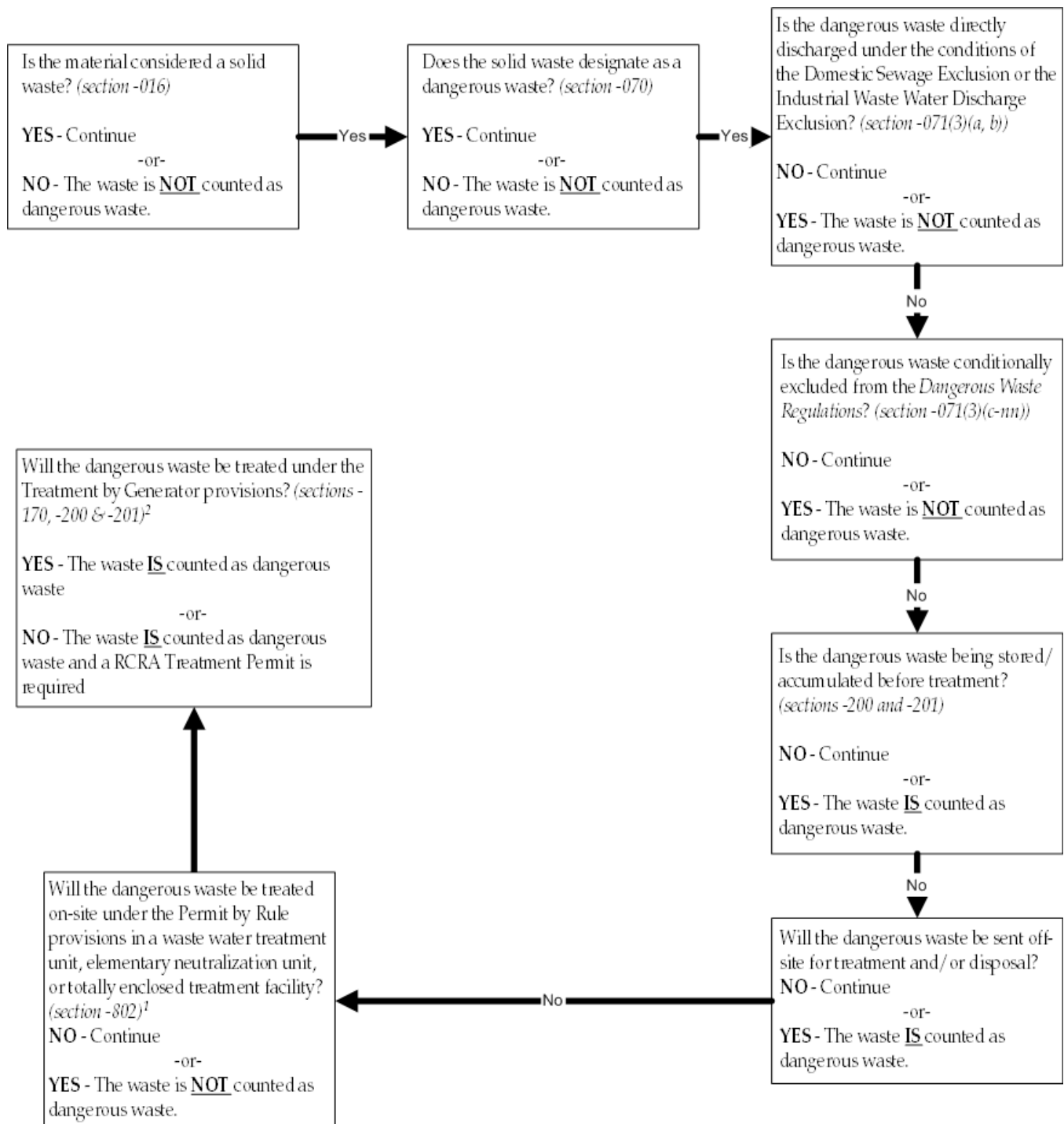
# Flow Chart 1

## Counting Dangerous Waste in Relation to Recycling



## Flow Chart 2

### Counting Dangerous Waste in Relation to Treatment



<sup>1</sup>Dangerous waste residues from the on-site Permit by Rule treatment of dangerous waste are counted if disposed outside the Permit by Rule provisions.

<sup>2</sup>Dangerous waste residues from the on-site treatment of dangerous waste under the Treatment by Generator provisions are counted.

# Counting Discussion 1

## Counting and the Domestic Sewage Exclusion

The Domestic Sewage Exclusion (DSE) allows dangerous waste to be discharged to a publicly-owned treatment works (POTW) only when such wastes are treatable at the POTW, and the discharger has a permit which authorizes the discharge of certain waste described in the permit. The dangerous waste is only excluded from the *Dangerous Waste Regulations* after it enters the sanitary sewer system. For additional guidance on the Domestic Sewage Exclusion, refer to Ecology's Technical Information Memorandum (TIM) titled "Domestic Sewage Exclusion," publication number 94-136 and WAC 173-303-071(3)(a).

### Dangerous waste counted under the DSE:

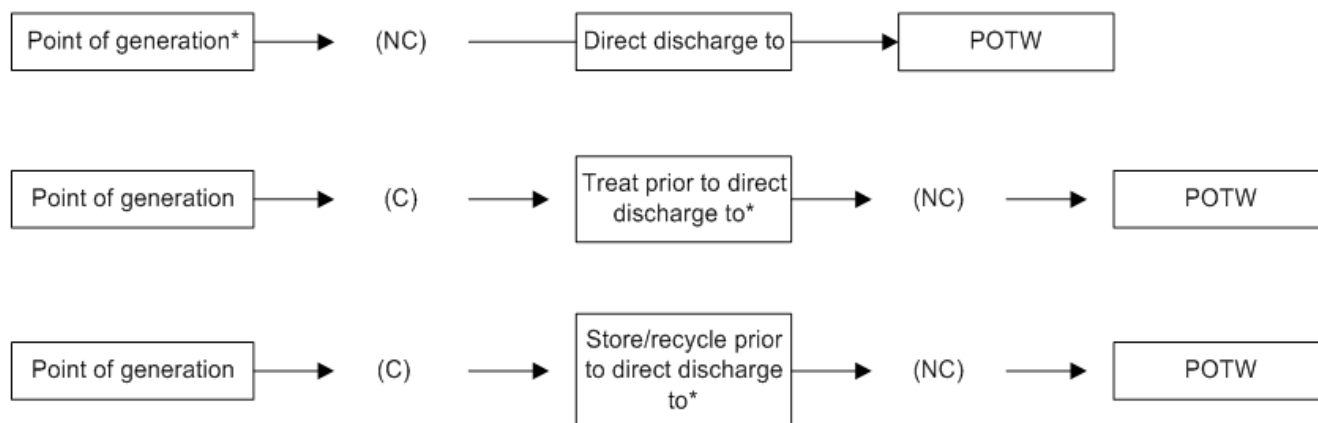
Dangerous waste managed prior to being directly discharged under the DSE to the sanitary sewer system is counted. This means dangerous waste stored, treated, or recycled prior to the point of direct discharge is counted.

### Dangerous waste not counted under the DSE:

As a policy, Ecology will not require dangerous wastes mixed with domestic sewage to be counted when the waste is being directly discharged into the POTW system in compliance with the domestic sewage exclusion (WAC 173-303-071(3)(a)).

The following flow diagrams are intended to help explain when counting is applicable under the DSE:

### Diagram for Discussion 1



\* means when the DSE applies.

(C) means count dangerous waste.

(NC) means do not count dangerous waste.

# Counting Discussion 2

## Counting and Storage and/or Accumulation

“Storage” means the holding of dangerous waste for a temporary period and is commonly subject to RCRA storage permit requirements. “Accumulation” of dangerous waste, by the generator on the site of generation, is not storage as long as the generator complies with the applicable requirements of WAC 173-303-200 and 173-303-201. However, it is not uncommon to hear the terms “storage” and “accumulation” used interchangeably. For additional guidance on storage and on satellite accumulation refer to the following TIMs: • “Effective Date of the 90-Day Storage (Accumulation) Requirement, TIM 82-5 (Revised 7/00); • “Satellite Accumulation,” publication number 94-120, revised January 2003.

### **Dangerous waste counted under the accumulation regulations:**

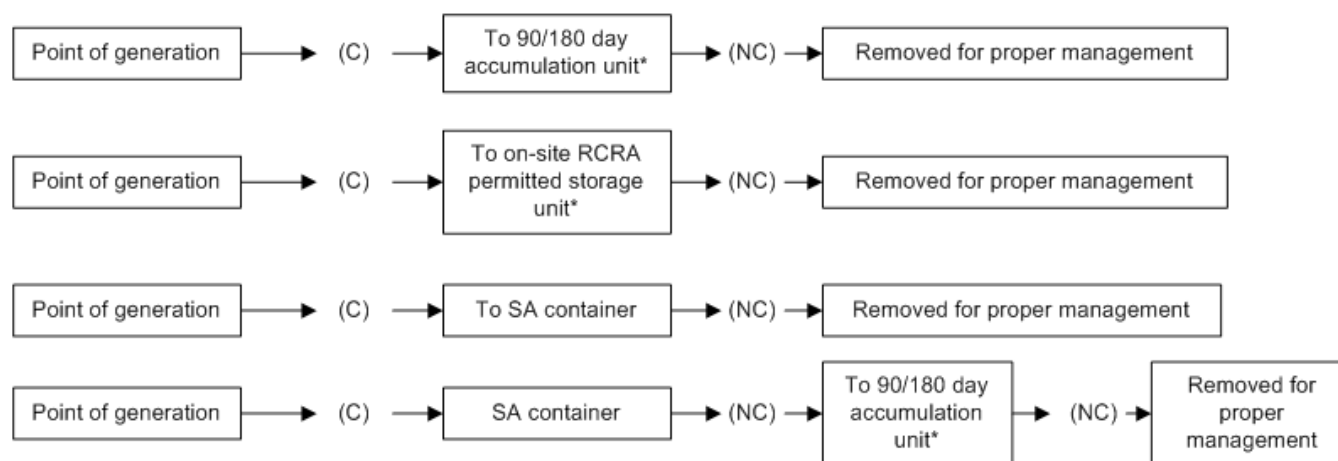
Dangerous waste is counted at the point of generation prior to storage or accumulation in the generator’s 90 or 180 day accumulation area. Likewise, dangerous waste accumulated under the satellite accumulation (SA) provisions (WAC 173-303-200(2)) is also counted toward the generator’s status on a monthly basis (see flow chart number 2 on page 3).

### **Dangerous waste not counted under the accumulation regulations:**

It is not necessary to count the dangerous waste again when it is moved from satellite accumulation to the generator’s 90 or 180 day accumulation area.

The following flow diagram is intended to help explain when counting is applicable when storing or accumulating waste:

### **Diagram for Discussion 2**



\*unit means tank or container.

(C) means count dangerous waste.

(NC) means do not counting of dangerous waste.

(SA) means satellite accumulation

# Counting Discussion 3

## Counting and Recycling / Excluded Wastes in General

As a general “rule,” dangerous wastes that are stored, disposed of, treated, recycled, or manifested are counted. However, there are exceptions to this “rule” where some dangerous wastes are not counted. These exceptions involve wastes being recycled a certain way or when a waste or management activity fulfills the requirements of a conditional exclusion.

“Recycle” means to use, reuse, or reclaim a material. “Use or reuse” means to employ a material as an ingredient in an industrial process or an effective substitute for a commercial product without first being reclaimed. Dangerous wastes may be used/reused, as described above, in such a way that they are removed from the status of a solid waste (WAC 173-303-017(2 & 3)) and not counted (see Flow Chart 1 on page 2). The reason for this is that certain waste materials can be used/reused in ways that are not considered to involve waste management and become exempt from the *Dangerous Waste Regulations*.

Some dangerous wastes hold conditional exclusions from the *Dangerous Waste Regulations*. When specific terms of an exclusion are met, Ecology conditionally excludes the waste. This is because the materials are either not dangerous waste, are regulated under other state and federal programs, or are recycled in ways which do not threaten public health or the environment. When the specific terms of an exclusion are met, the dangerous waste may become conditionally excluded from rule and not counted (WAC 173-303-071). A few examples include treated wood waste, polychlorinated biphenyls (PCBs), waste generated in a product or raw material storage tank until removed, and waste reclaimed and reused in a closed loop system (see Flow Chart 1 on page 2).

The *Dangerous Waste Regulations* list certain dangerous wastes that are not counted when recycled in a certain way. Like the excluded categories of waste, recyclable materials must be recycled following specific conditions. When the conditions are met, the waste is not counted toward the generator’s status. Refer to WAC 173-303-070(7)(c & d) and Flow Chart 1. Examples of wastes having recycling conditions include used oil, spent CFC and HCFC refrigerants, spent lead acid batteries, used batteries, scrap metal, spent antifreeze, waste recycled without prior storage or accumulation (see Counting Discussion 4), and waste recycled under the “multiple counting exemption” (see Counting Discussion 5).

**Note:** There is no flow diagram to accompany this discussion.



# Counting Discussion 4

## Counting and Recycling Without Prior Accumulation or Storage

Under this counting exclusion there can be no storage or accumulation prior to the recycling activity. The advantage to the generator, then, would be no counting of the dangerous waste entering the recycling unit. "Without prior storage or accumulation" means that as soon as the waste is generated it immediately enters the recycling unit. Wastes could be carried in containers, for example, only if the waste is transferred immediately upon generation to the recycling unit. For more detail refer to WAC 173-303-070(7)(c)(iv).

### **Dangerous waste counted with no prior storage or accumulation:**

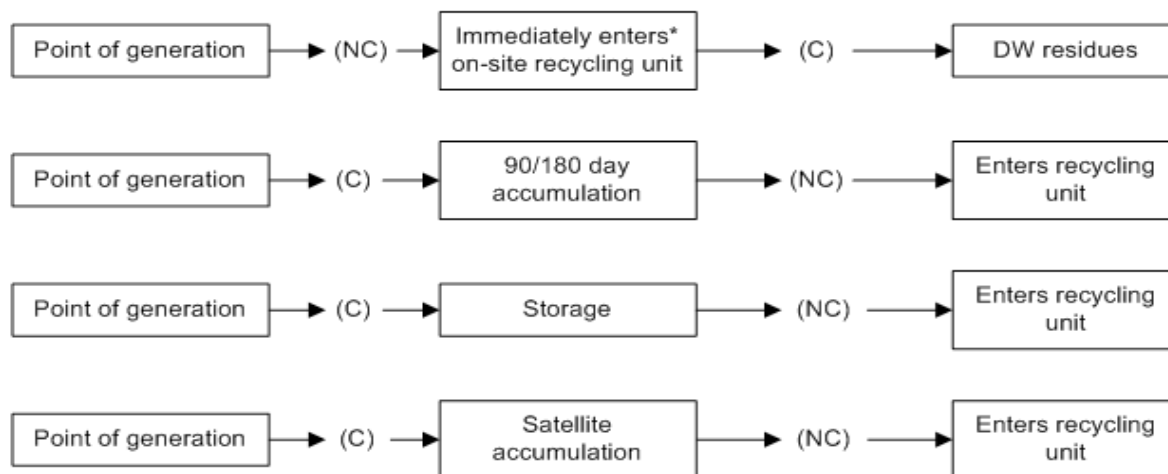
Dangerous waste residues generated from the recycling activity are counted.

### **Dangerous waste not counted without prior storage or accumulation:**

Dangerous wastes are not counted when they can be recycled on-site, without first being stored or accumulated, only in an on-site process subject to regulation under WAC 173-303-120(4)(a).

The following flow diagram is intended to help explain when counting is applicable:

**Diagram for Discussion 4**



\*"immediately enters" means without first being stored or accumulated.

(C) means count dangerous waste.

(NC) means do not count dangerous waste.

# Counting Discussion 5

## Counting and the Multiple Counting Exemption

Businesses that do on-site solvent recycling must count spent solvents as dangerous waste when they are stored or accumulated prior to distillation. As stated on page one, two reasons for counting these wastes are to:

1. Determine generator status for the month, and
2. Report the combined monthly amount on the Dangerous Waste Annual Report.\* (See Counting Discussion 8).

The multiple counting exemption provides a benefit to generators by eliminating the over-counting of solvents that are reclaimed and reused multiple times during that month. By potentially reducing the countable quantity of dangerous waste, this exemption may help businesses decrease their regulatory requirements. The exemption becomes beneficial when spent solvents are recycled at least twice per month. Recycling more often increases the benefits from this exemption.

The *Dangerous Waste Regulations* state that spent materials which are generated, reclaimed, and reused (all occurring on-site) are counted only once during the month the material became spent [WAC 173-303-070(7)(d)(iii)]. This means that generators don't have to count every single batch of spent solvent that is distilled. They are required to count these materials once per month, and the following text explains what this means and how it is done.

### When are the spent solvents counted?

When the still is hard-piped directly to the production process, and the reclaimed solvent is returned (also hard-piped) to that process, the spent solvents do not need to be counted. There is no accumulation or storage occurring.

Spent solvent would be counted when there is storage or accumulation. After solvents have become too contaminated for further use, they are accumulated in a container (or containers) until the shop is ready to operate the still. This accumulated quantity should be recorded on a Monthly Generator Status Form on Column 2 (see example on page 10). Every time these solvents are accumulated and recycled during the month, the quantity accumulated prior to recycling would be recorded on the form. At month's end, select the largest amount in column 2 as the countable quantity of solvent waste.

*\*Note: Small quantity generators are not required to report this activity.*

It is important to realize that this accumulated quantity of spent solvent may be considerably larger than a single batch run through the still, depending on size of still, volume of material and recycling frequency. It may require two or more still runs to process the total amount collected. Keep careful track of each accumulated quantity of spent solvent in order to properly record the amount.

Each month the generator will count the largest amount of spent solvent accumulated prior to on-site recycling. This largest accumulated amount may not actually be recycled before the end of the month, but it would still be counted as the month's largest accumulated quantity. Solvents accumulated and not recycled by the end of the month should be carried over into the next month.

In this new month, the carried over amount would be added to any additional spent solvents accumulated prior to recycling. This combined amount may very well be the largest amount accumulated in the second month. To avoid an apparent double-counting situation in the second month (of the material carried over from the previous month), it would be to the generator's advantage to recycle often. The generator may consider recycling at the end of the month so that there would be no accumulated solvent to carry over into the following month.

Any dangerous wastes generated through mishandling or spills do not fit the requirements of the "multiple counting exemption" and therefore is counted toward determining the generator's monthly generation status. Also, all dangerous waste residues (for example, still bottoms) produced from the recycling process are counted each month (refer to page 2, Flow Chart 1).

It is necessary to convert gallons to pounds when submitting annual report information. One way to do this is to collect a representative gallon of waste and weigh it. Another method would be to multiply the solvent's specific gravity by 8.34 (the weight of water in pounds) to convert gallons of spent solvent to a weight amount. Refer to the solvent's material safety and data sheet for its specific gravity.

### **Don't count solvent evaporative loss from cleaning process**

During production and cleaning processes, solvents may be "lost" through evaporation or because they cling to the cleaned parts. These solvents lost to the atmosphere would not be counted towards the generator's status. Virgin solvent is added to the reclaimed solvent as "make up" for this loss. Counting the virgin solvent before use, or counting make-up added after reclamation, is not necessary and may result in over-counting.

## Assess evaporative loss from still operation

Evaporative loss from operating the still is a waste that should be counted. However, if a still is operating efficiently, this loss should be negligible and does not need to be reported. If the still appears to be working poorly, an Ecology inspector may require the facility to calculate evaporative loss for the month and include it as part of the total dangerous waste generated. Stills should be well maintained. For example, seals and gaskets should be replaced when needed.

### Example

The following is an example meant to clarify this exemption using the accompanying generator status form and flow diagram. Keep in mind that this is ONLY an example, and is not meant to cover every situation or counting method in relation to the “multiple counting exemption.”

**Application:** A fiberglass shop recycles their acetone on-site. In this example, spent solvent is accumulated and distilled three times during the month.

1. On January 10 the shop starts distilling 160 pounds of collected spent solvent (counting from January 1). They may or may not distill all 160 pounds in a single still run, depending on the capacity of the still.
2. Meanwhile, they are starting to generate more spent solvent. They accumulate 150 pounds, and they start distilling this amount on January 17.
3. Again, they generate and collect 180 pounds of solvent and on January 28 they begin distilling this amount.

The quantity of spent solvent (not including still bottoms) reported for the month is 180 pounds. To clarify, the generator will report the largest amount of spent solvent accumulated prior to on-site recycling.

\*Monthly Generator Status Form

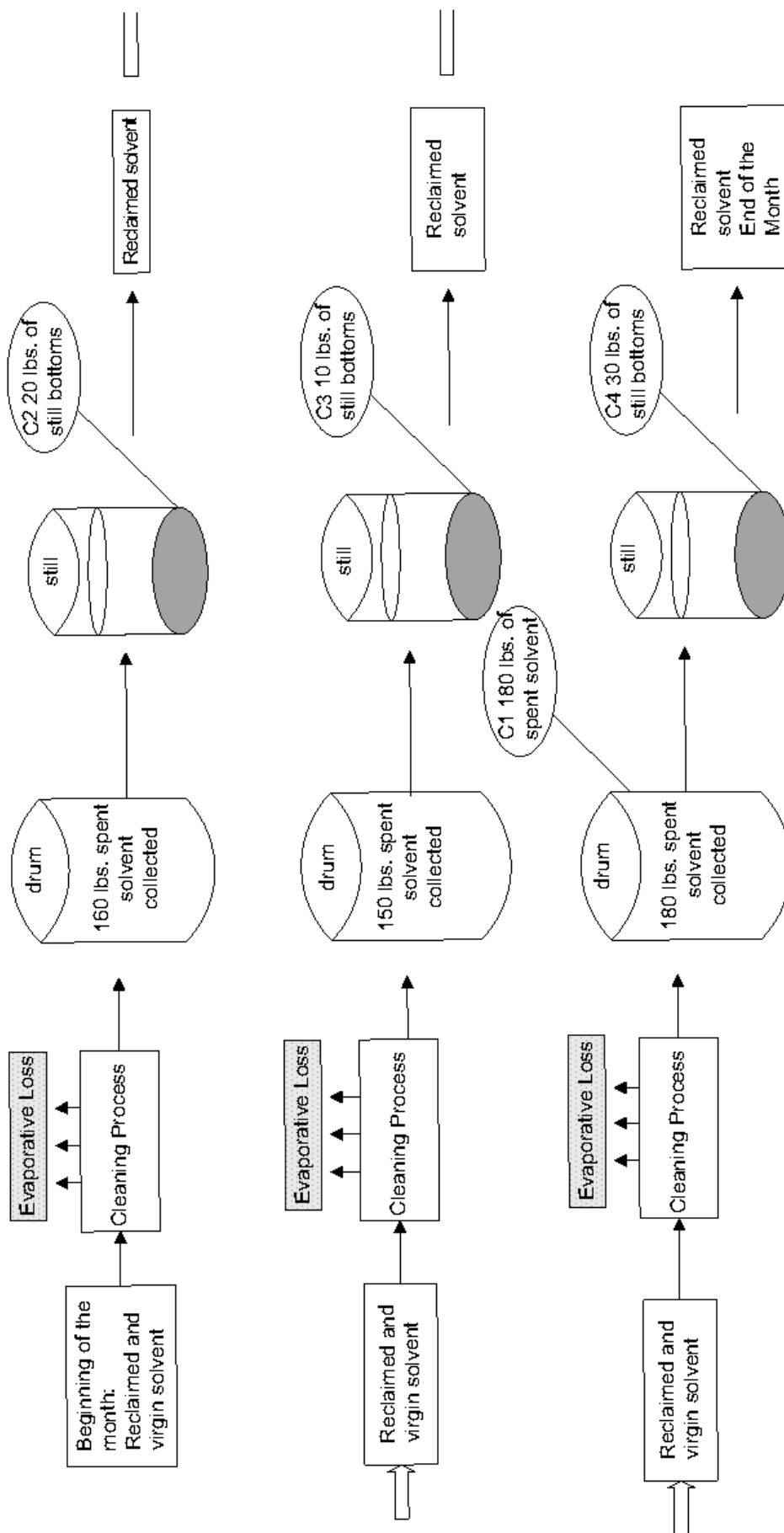
| Column 1                | Column 2                            | Column 3                          |
|-------------------------|-------------------------------------|-----------------------------------|
| Distillation Start Date | Pounds collected prior to recycling | Pounds of still bottoms generated |
| Jan. 10 <sup>th</sup>   | 160                                 | 20                                |
| Jan. 17 <sup>th</sup>   | 150                                 | 10                                |
| Jan. 28 <sup>th</sup>   | 180                                 | 30                                |
|                         | Largest value = 180                 | Total = 60                        |

*\*This is an example form that may be helpful for determining the monthly reportable quantity of spent solvent. However, its use is not required.*

Calculating solvent waste for January:

- 1) Largest number in column #2: 180
- 2) Total of column # 3:  
TOTAL:  $\frac{60}{240}$  = amount of solvent waste generated during January

**Diagram 5: Example of the Multiple Counting Exemption for One Month's Activity**



Note 1: Without the multiple counting exemption, a generator would have counted 550 pounds instead of 240 lbs.

Note 2: In this example, evaporative loss from the still is zero, with inefficient stills this loss may need to be calculated and added to monthly dangerous waste total. (See text discussion.)

| Monthly Counting of Dangerous Waste |                            |
|-------------------------------------|----------------------------|
| C1                                  | 180 lbs spent solvent      |
| C2                                  | 20 lbs still bottoms       |
| C3                                  | 10 lbs still bottoms       |
| C4                                  | 30 lbs still bottoms       |
| Monthly Total                       | 240 lbs of dangerous waste |

## Additional Business Examples

1. A small paint shop paints steel objects, all within their shop. They use one five-gallon container to collect all the spent cleaning solvent. When the container is full, they transfer the spent solvent into a five-gallon still. This recycling process is repeated 10 times during the month. Five gallons of spent solvent (converted to pounds) would be reported for the month, plus the total still bottoms from all 10 still runs.

2. A large auto body paint shop has three different painters each generating five gallons of spent solvent from paint mixing and clean-up activities. When their individual containers are full, they combine them in a drum for a total of 15 gallons. The 15 gallons is then distilled, one batch at a time, in a still with a five gallon capacity. The generator would need to count the whole 15 gallons on column two of the Generator Status Form, not just the five gallons that ran through the still one time.

The paint shop continues to generate and accumulate 20 gallons of additional spent solvent for the rest of this month. They would count a total of 20 gallons spent solvent for the month, whether it was recycled or not. If this additional amount was not recycled on January 31, it would be counted again prior to the next recycling event.

| Column 1                | Column 2                              | Column 3                          |
|-------------------------|---------------------------------------|-----------------------------------|
| Distillation Start Date | Gallons* collected prior to recycling | Pounds of still bottoms generated |
| Jan. 15 <sup>th</sup>   | 15                                    | XX**                              |
| Jan. 31 <sup>st</sup>   | 20                                    | XX**                              |
|                         | Largest value = 20                    |                                   |

\*For simplicity, numbers are in gallons. Remember to convert to pounds for reporting purposes.

\*\*Still bottoms are normally recorded, but are ignored in this example.

# Counting Discussion 6

## Counting and Treatment by Generator

The “Treatment by Generator” (TBG) provisions found in WAC 173-303-170(3) and -200 allow generators to treat their own dangerous waste on-site without obtaining a RCRA “TSD” treatment permit. For additional guidance, refer to TIM Number 96-412 (revised May 1999), titled “Treatment by Generator.”

### Dangerous waste counted under TBG:

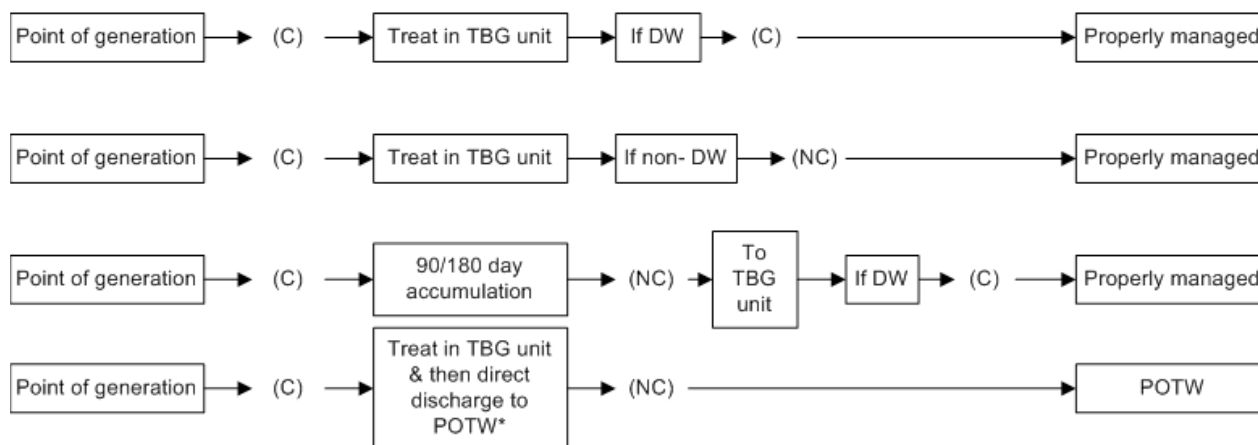
Dangerous waste intended for treatment under the TBG allowance is counted toward the generator’s status before it is treated (see Flow Chart 2 on page 3). A TBG activity is considered a separate activity from the production or cleaning process originally generating the dangerous waste. Therefore, dangerous waste derived (generated) from a TBG activity is also counted toward the generator’s status.

### Dangerous waste not counted under TBG:

Waste not counted under TBG includes wastes derived from the TBG activity which do not designate as dangerous waste. Also, dangerous waste from TBG activities that are directly discharged into the POTW system in compliance with the domestic sewage exclusion (WAC 173-303-071(3)(a)) are not counted.

The following flow diagram is intended to help explain when counting is applicable when treating waste under the TBG provisions:

**Diagram for Discussion 6**



\*When the DSE applies.

(C) means count dangerous waste.

(NC) means do not count dangerous waste.



# Counting Discussion 7

## Counting and Permit by Rule

The Permit-by-Rule (PBR) provisions allow on-site treatment of dangerous waste without a written RCRA “TSD” treatment permit under certain conditions. For PBR provisions to apply, generators must treat their waste only in a wastewater treatment unit, elementary neutralization unit, or totally enclosed treatment unit. Details are outlined in Flow Chart 2, as well as in WAC 173-303-040 and -802(5).

### **Dangerous waste counted under PBR:**

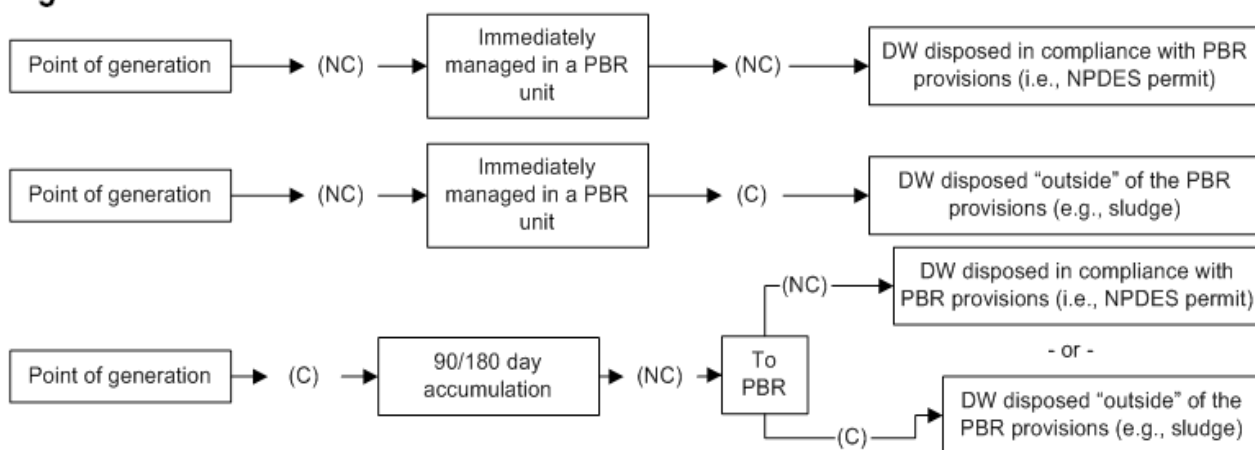
Dangerous wastes removed from the PBR unit and no longer covered by the PBR provisions, such as sludge removed for land disposal, are counted.

### **Dangerous waste not counted under PBR:**

Wastes managed immediately upon generation in an on-site PBR unit are not counted. The key term in this provision is “immediately”, which means as soon as the waste is generated it must directly enter a PBR unit. There is no temporary storage, accumulation or other type of management of waste between the point of generation and the PBR unit. Also, dangerous waste discharged in compliance with the PBR provisions and wastes discharged in compliance with the unit’s NPDES<sup>1</sup> discharge permit are not counted.

The following flow diagram is intended to help explain when counting is applicable when treating waste under the PBR provisions:

**Diagram for Discussion 7**



<sup>1</sup> National Pollution Prevention Discharge Elimination System  
 (C) means count dangerous waste.  
 (NC) means do not counting of dangerous waste.



# Counting Discussion 8

## Counting and Annual Reporting Requirements

The second reason to count hazardous waste under the *Dangerous Waste Regulations* is to comply with annual reporting requirements associated with submitting a Dangerous Waste Annual Report. All generators, transporters, TSDs and recycling facilities with a RCRA Identification Number are required to complete the annual report for each calendar year in which their ID number is active.

A generator must count and record the amount of dangerous waste generated, accumulated and recycled each month for the reporting year. The generator's reporting status is defined by the greatest quantity of dangerous waste generated or accumulated in any one calendar month.

The generator must know whether they are a small (SQG), medium (MQG), or large quantity generator (LQG) to know which report forms to fill out. For example, if a generator is an SQG for most of the year but becomes an MQG for one month, the generator would fill out the reporting forms required for an MQG.

### Annual Report Book 1:

The "Annual Report Book 1" contains forms and instructions. Worksheets are available to help the annual reporter select their correct reporting status and determine which forms to fill out. SQGs and transporters fill out limited information. Refer to the Dangerous Waste Annual Report instructions for further details.

